## REMARKS

Claims 1-9 are pending. Claims 1-9 are rejected. Claims 1, 3, 4, 7 and 8 are amended. The specification is also amended to correct grammatical errors. Support for the amendments can be found throughout the application, for instance at page 15 (lines 1-13) of the specification and in the claims as originally filed. No new matter is added. Claims 1-9 are submitted for further consideration at this time. Applicants respectfully request reconsideration and withdrawal of all rejections.

### Drawings

The drawings are objected to. It is alleged that in Figures 10, 11, 12 and 13 only that which is old is illustrated. Applicants respectfully submit that the objection is moot as these Figures have been amended as indicated herein so as to be designated by the legend "Related Art", in accordance with the suggestion at page 2 of the Office Action. Applicants urge withdrawal of the objection.

### Specification

The disclosure is objected to. At pages 2-3 of the Office Action, various corrections to the specification are suggested. Applicants respectfully submit that the objection is moot as the specification has been amended as indicated herein to correct certain grammatical matters, in accordance with the suggestions of the Office Action. Applicants note that page 12, line 14 of the specification does not appear to contain any

grammatical error as alleged at page 2 of the Office Action. Applicants urge withdrawal of all objections.

**Claim Rejections - 35 U.S.C. §112**

Claims 3, 4 and 6-9 are rejected under 35 U.S.C. §112, second paragraph, as being indefinite. It is alleged that in claims 3, 4 and 6, the term "small" is a relative term that does not clearly define the "small heat shrinkage rate". Applicants respectfully submit that the rejection is moot as the claims have been amended to recite a heat shrinkage rate of 1.0% or lower, as indicated herein. Applicants note that the specification clearly indicates that such a shrinkage rate is preferred, stating:

> It is desirable that a condition of the heating process satisfies that the heat shrinkage rate of the resin film after heating for 30 minutes at 150°C is 1.0% or lower, more preferably 0.3% or lower. For example, in manufacturing a solar cell module of a rectangular shape of not longer than one meter per side, a resin film which is previously heat-shrunk so that the heat shrinkage rate by heating at 150°C for 30 minutes is 1.0% or lower is used as the resin film and the rear surface protecting film in order to improve moisture proofness. Thus, the solar cell module can be manufactured with high yields. In manufacturing a large sized solar cell module of 1-2 meter per side, a resin film which is previously heat-shrunk so that the heat shrinkage rate by heating at 150°C for 30 minutes is 0.3% or lower is used as the resin film and the rear surface protecting layer in order to improve moisture proofness. Thus, the solar cell module can be manufactured with high yields.

(See page 15, lines 1-13 of the specification). Applicants urge that the claims should be considered clear and definite.

It is also alleged that in claim 7, there is insufficient antecedent basis for "the solar cells". Applicants respectfully submit that in claim 7, the phrase "the solar cells" has been amended to recite --the solar cell--, as indicated herein, and in

accordance with the suggestion at page 3 of the Office Action.

Finally, it is alleged that in claims 8 and 9, there is insufficient antecedent basis for "the solar cells" and "the cells". Applicants note that this rejection is moot in view of the amendments indicated herein of "the solar cells" and "the cells" to recite --the solar cell-- and --the cell--, respectively. Applicants urge withdrawal of all rejections.

**Claim Rejections - 35 U.S.C. §102**

Claims 1, 3, 5 and 6 are rejected under 35 U.S.C. §102(b) as being anticipated by Komori et al. (EP 0 829 909 A2). It is alleged that Komori et al. teaches each and every element of the claimed invention.

Applicants respectfully disagree. The present invention in a preferred embodiment is concerned with a solar cell module comprising a front surface protecting layer, a rear surface protecting layer, and a solar cell and a resin film sealed within sealing resin between the front surface protecting layer and the rear surface protecting layer. The resin film is formed between the solar cell and front surface protecting layer. The resin film is also smaller in size than an overlaying area of the front surface protecting layer and the rear surface protecting layer. Applicants note that in sealing a resin film within sealing resin between a front surface protecting layer and solar cell, the claimed invention is able to provide for long-standing reliability.

No such invention is taught or suggested in the prior art. Komori et al. is directed to a solar cell module capable of effectively suppressing moisture intrusion into the interior of the solar cell module. With reference to Figures 1A and 1B, the solar cell module of Komori et al. includes a photo-electricity generating device (solar cell)

101, an inorganic fibrous (sheet) material 102, a filler resin 103, a surface film 104, an adhesive 105, an insulating film 106 and a substrate 107 (page 3, lines 15-19). Komori et al. discloses that the insulating film 106 is larger than the inorganic fibrous sheet 102 (page 3, lines 22-23). Komori et al. also discloses that the inorganic fibrous sheet 102 is disposed inside the edge(s) of the insulating film 106 (page 3, lines 26-27).

Applicants wish to emphasize at least one significant difference between Komori et al. and the claimed invention. That is, the claimed invention requires a resin film sealed within sealing resin (See e.g., Figure 1) while Komori et al. discloses resin 103 simply layered over or covering the fibrous sheet 102. Applicants urge that it would be quite clear to those of ordinary skill in the art that the layers of resin 103 and fibrous sheet 102 in Komori et al. do not teach or suggest the "resin film sealed within sealing resin", as claimed. Therefore, in that the cited reference does not teach or suggest each and every element of the claimed invention, Applicants urge withdrawal of the rejection.

Claims 1, 3 and 5 are rejected under 35 U.S.C. §102(b) as being anticipated by Kataoka et al. (U.S. Patent No. 6,307,145). It is alleged that Kataoka et al. teaches each and every element of the claimed invention.

Applicants respectfully disagree. The claimed invention in one preferred embodiment is discussed above.

Applicants again submit that no such invention is taught or suggested in the prior art. Kataoka et al. is directed to a solar cell module. With reference to Figure 1B, Kataoka et al. discloses the solar cell module including a photovoltaic element 101, the light-incidence-side surface of which is covered by a surface covering member (col.

4, lines 1-3). The surface covering member comprises at least a transparent surface sealant resin layer 102 and a transparent surface protecting film 103 located on the outermost surface side (col. 4, lines 3-5). Kataoka et al. discloses a transparent, rigid, organic resin thin film layer 108 provided on the light incidence side of the photovoltaic element 101 (col. 3, lines 13-15). Kataoka et al. also discloses that the solar cell module includes a back sealant resin layer 104, a back covering film 105, a nonwoven fabric of glass fiber 106, and a module backing 107 (col. 3, lines 5-7). The resin films 105, 108 appear to be smaller than the surface protecting film 103 and the module backing 107 (Figure 1B).

Applicants therefore submit that the claimed invention can be distinguished from Kataoka et al. in view of at least one particular claim feature. Applicants note that the film 105 of Kataoka et al. is formed between the module backing 107 and the photovoltaic element 101 (See Figure 1B). In contrast, the claimed invention requires that the resin film is formed between the solar cell and the front surface protecting layer. No such configuration is taught or suggested by the Kataoka et al. reference. Although Kataoka et al. does disclose a nonwoven fabric glass fiber 106 formed between the photovoltaic element 101 and the surface protecting film 103, this fiber 106 is not the "resin film" of the claimed invention. Therefore, in that the cited reference is unable to teach or suggest each and every element of the claimed invention, Applicants urge withdrawal of the rejection.

**Claim Rejections - 35 U.S.C. §103**

Claims 2, 4 and 7 are rejected under 35 U.S.C. §103(a) as being obvious over Komori et al. in view of alleged admissions contained in the disclosure of the application. It is alleged that it would have been obvious to have modified the solar cell module of Komori et al. with a transparent rear surface protective layer allegedly disclosed in the application, because using such a rear layer would allow the solar cell to absorb light through the front and rear surfaces of the solar cell module.

Komori et al. is discussed above.

It is alleged in the Office Action that the application discloses that solar cell modules capable of receiving light from both the front and back surfaces are known in the art (See page 1, line 17 to page 2, line 8 of the specification).

However, Applicants respectfully point out that claims 2, 4 and 7 are dependent on claim 1. As discussed above, claim 1 should be considered patentable over the Komori et al. reference. Applicants urge that any disclosure of the application does not cure the deficiencies of the cited reference. Therefore, in that claim 1 should be considered patentable, for those reasons discussed above, claims 2, 4 and 7 should also be considered patentable by virtue of at least their dependency thereon.

Claims 8 and 9 are also rejected under 35 U.S.C. §103(a) as being obvious over Komori et al. It is alleged that it would have been obvious to modify the solar cell module of Komori et al. to use wiring and to cover the wiring with insulation tape, because it is well known in the art to use wiring and insulating tape for connecting electrical devices.

Claims 8 and 9 are also dependent on claim 1. Applicants therefore submit that since claim 1 should be considered patentable over the Komori et al. reference, for those reasons discussed above, claims 8 and 9 should also be considered patentable by virtue of at least their dependency thereon. Applicants urge withdrawal of all rejections.

In view of the amendments and remarks above, Applicants submit that this application is in condition for allowance and request favorable action thereon.

In the event this paper is not considered to be timely filed, Applicants hereby petition for an appropriate extension of time. The fee for this extension may be charged to our Deposit Account No. 01-2300. The Commissioner is hereby authorized to charge any fee deficiency or credit any overpayment associated with this communication to Deposit Account No. 01-2300, referencing Attorney Docket No. 107336-00025.

Respectfully submitted,
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Marked-Up Copy of Claim Amendments

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## MARKED-UP COPY OF SPECIFICATION AMENDMENTS

Page 1, paragraph [0002] of the specification.

Solar power generation which utilizes photovoltaic effect to convert photo energy into electrical energy has been used to obtain clean energy. As photovoltaic conversion efficiency of a solar cell has been improved, more ordinary households have been equipped with the solar power generation system. In using [such the] a solar power generation system as a practical energy source, a plurality of solar cells are electrically connected in series to form a solar cell module.

Pages 3-4, paragraph [0009] of the specification.

Degradation of adhesiveness between the hard film and the sealing resin 103 causes easy intrusion of water (vapor) from the interface and the adhesiveness and the long-term reliability are further degraded. Such [the] a problem also occurs when the hard film is formed either between the solar cells 102 and the front surface protecting layer 100 or between the solar cells 102 and the rear surface protecting layer 150.

Page 13, paragraph [0054] of the specification.

Because the resin film heat shrinks in the heat process, when a size of the resin film as the rear surface protecting layer before the vacuum lamination process is the same as the size of the glass plate as the front surface protecting layer, the resin film serving as protection material is short at an edge, leading to degradation of weather proofness and

water proofness. The resin film larger than the glass plate can solve this problem. However it is troublesome to cut off the redundant resin film.

Page 15, paragraph [0063] of the specification.

A polyphenylene sulfide film can replace with the lamination of a PVDF film and a PET film, and the PET film. Such [the] films can provide the same effect as mentioned above.

Pages 15-16, paragraph [0064] of the specification.

In the above embodiment, because the resin film previously heat shrunk by the heating process is used as the resin film 40 and the rear surface protecting film 20, the resin film 40 and the rear surface protecting film 20 heat-shrink little in the manufacturing processes (the vacuum lamination process and the heating process for bridging). As a result, the copper foil 3a does not deform and the solar cells 3 do not shift [the] positions. Furthermore, the resin film 40 can completely cover the surface of the solar cell array and an end surface of the resin film 40 is covered with the EVA resin. Thus, the weather proofness and the moisture proofness do not degrade. In addition, because of the rear surface protecting film 20 is as large as the front surface protecting layer 1 of the glass plate, it is not necessary to cut off redundancy of the rear surface protecting film 20.

Page 16, paragraph [0066] of the specification.

When the resin film of such [the] a material does not need a process for heat shrinkage,

[and] the number of processes can be reduced. When the resin film of the heat shrinkage rate (at 150°C, 30 minutes) 1.0% or lower is used as the resin film 40 and the rear surface protecting film 20, a small-sized solar cell module of one meter per side can be manufactured with high yields. When the resin film of the heat shrinkage rate (at 150°C, 30 minutes) 0.3% or lower is used as the resin film 40 and the rear surface protecting film 20, a large-sized solar cell module of 1-2 meter per side can be manufactured with high yields. An olefin film can replace [with] the PET film and the PVDF film as the resin film.

Page 19, paragraph [0080] of the specification.

The insulating tape 67 can cover the wirings 66a, 66b [by any] in many ways, for example, it can sandwich and cover the wirings from front and rear surface sides.

Pages 20-21, paragraph [0086] of the specification.

A PVF film, and a polyphenylene sulfide film can replace with the PET film as the resin film. Such [the] films can provide the same effect as mentioned above.

Page 21, paragraph [0088] of the specification.

The resin film of such [the] a material does not need a process for heat shrinkage, and the number of processes can be reduced. When the resin film of the heat shrinkage rate (at 150°C for 30 minutes) 1.0% or lower is used as the resin film 63a, a small-sized solar cell module of one meter per side can be manufactured with high yields. When the resin film of the heat shrinkage rate (at 150°C for 30 minutes) 0.3% or lower is used

as the resin film 63a, a large-sized solar cell module of 1-2 meter per side can be manufactured with high yields. An olefin film can replace [with] the PET film and PVDF film as the resin film.

Page 22, paragraph [0091] of the specification.

The resin films 4, 63 may be other than hard PET, for example may be such as polyester, polyphenylene sulfide film, polyimide film, poly vinyl chloride, polycarbonate, polyphenylene oxide, polysulfone, polyethersulfone, poly vinyl fluoride (PVF), or PVDF.

## MARKED-UP COPY OF CLAIM AMENDMENTS

1 (Amended). A solar cell module comprising a front surface protecting layer, a rear surface protecting layer, and a solar cell and a resin film sealed [by] within sealing resin between the front surface protecting layer and the rear surface protecting layer, the resin film being formed between the solar cell and the front surface protecting layer,

wherein the resin film is smaller in size than an overlaying area of the front surface protecting layer and the rear surface protecting layer.

3 (Amended). The solar cell module according to claim 1,

wherein the resin film is a film which is previously heat-shrunk or a film [of a small] having a heat shrinkage rate of 1.0% or lower.

4 (Amended). The solar cell module according to claim 2,

wherein the rear surface protecting layer is a film which is previously heat-shrunk or a film [of a small] having a heat shrinkage rate of 1.0% or lower.

7 (Amended). The solar cell module according to claim 2,

wherein [the resin film is formed between the front surface protecting layer and the solar cell, and] the resin film is overlaid on an area including at least the solar [cells] cell within the overlaying area of the front surface protecting layer and the rear surface protecting layer.

8 (Amended). The solar cell module according to claim 1,

wherein the front surface protecting layer is a glass plate, the rear surface protecting layer is a metal plate, [the] another resin film is formed between the solar cell and the rear surface protecting layer, and the resin film is overlaid on an area including at least the solar [cells] cell and a wiring of the [cells] cell within the overlaying area of the front surface protecting layer and the rear surface protecting layer.